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EXAMINER	
MACKOWEY, ANTHONY M	

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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,433	ARAKAWA, SATOSHI	
	Examiner	Art Unit	
	Anthony Mackowey	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The Amendment filed April 18, 2006 has been entered and made of record.

Applicant's arguments filed April 18, 2006 have been fully considered but they are not persuasive.

Applicant's arguments with respect to independent claims 1 and 5, submit that the Shimura reference fails to teach each feature of the independent claims, specifically, that second energy subtraction is performed utilizing a pair of corrected original image signals which have been obtained at the time of the first energy subtraction. Applicant contends that Shimura teaches the first and second subtractions are performed in parallel and the corrected images are not shared between the subtractions (page 12, lines 7-12). Applicant asserts that the general discussion of the first and second subtractions (cols. 15-16) does not indicate the second subtraction reuses the corrected data. Figure 9 of Shimura clearly shows the first and second subtractions receive the same first and second image signals (SO1 and SO2) and col. 15, lines 1-16 clearly describe position adjusting the first image signal and the second image signal prior the subtractions. Examiner believes this disclosure clearly implies the subtract processes are receiving the same position adjusted first and second image signals. Furthermore, the language of claims 1 and 5 does not preclude the first and subtraction processing from being performed essentially in parallel, nor does the Shimura reference explicitly recite the processes as being performed in parallel.

With regard to applicant's arguments presented on page 13, lines 15, regarding images for observation. Such a feature is not disclosed in presently presented claims 1 or 5. However, newly presented claim 27 recites, "wherein the first energy subtraction processing provides a first observation image, and wherein the second energy subtraction processing provides a second observation image." New claim 27 will be addressed in rejections below.

With regard to applicant's arguments presented for claim 2, applicant contends that cols. 18 and 19 refer to the storage of high and low signals individually and not the corrected image signals specifically. Col. 18, lines 62-68 of Shimura recites, "the image processing and displaying apparatus 30 carries out the processes on the first image signal SO1 representing the first X-ray image and the second X-ray image, which signals are stored in the internal memory of the image processing and displaying apparatus 30." Shimura reference does not distinguish between the original images and the position adjusted original images through use of different notation or reference symbols. The image processing and display apparatus taught by Shimura appears to the a conventional computer as is well known in the art, such computers having internal memory such as RAM which feeds data to the CPU and is utilized during image processing and display. Therefore, Examiner submits that storage of the corrected images in the internal memory of the computer during image processing is inherent to the functionality of the image processing apparatus as it performs the position correction and the following subtraction processes. Examiner believes that rejections presented in the previous Office Action support Examiner's interpretation of the internal memory as a buffer memory or RAM.

Applicant does not traverse the examiner's assertion of official notice regarding signal transfer cables and filing devices, therefore the common knowledge or well-known in the art statement is taken to be admitted prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,301,107 to Shimura.

Regarding claim 1, Shimura discloses a radiation image signal processing method (col. 1, lines 7-12), comprising the steps of:

i) performing image position correcting processing for correcting a low energy image signal and/or a high energy image signal such that a position of an image, which is represented by the low energy image signal, and a position of an image, which is represented by a the high energy image signal, coincide with each other, a pair of corrected original image signals being thereby obtained (col. 14, lines 52-65; col. 15, lines 1-14, Shimura teaches position adjustment processing is carried out on the image signals SO1 (low energy image) and SO2 (high energy image) such that the positions of the images coincide with each other.),

ii) performing first energy subtraction processing on the pair of the corrected original image signals (col. 15, lines 15-40; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing energy subtraction to produce the bone image signal S1.), and

iii) performing second energy subtraction processing with respect to the low energy image signal and the high energy image signal (col. 15, lines 41-54; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing energy subtraction to produce the soft tissue image signal S2.),

wherein the second energy subtraction processing is performed by the utilization of the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing (col. 15, lines 1-54; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing position adjustment processing and then performing the first and second energy subtraction processing. It is clear the first and second energy subtraction processing are performed using the same pair of position adjusted image signals.).

Regarding claim 2, Shimura discloses the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing, are stored (col. 18, line 60 – col. 19, line 9, Shimura teaches the image signals are stored in the internal memory. Also, please see discussion above in the response section.), and

the second energy subtraction processing is performed by the utilization of the pair of the corrected original image signals, which have thus been stored (col. 18, line 60 – col. 19, line 9, Shimura teaches both the first and second energy subtraction processing are performed on the image signals stored in the internal memory.).

Regarding claim 3, Although Shimura does not explicitly recite the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing, are transferred to a certain destination, and the second energy subtraction processing is performed at the transfer destination by the utilization of the pair of the corrected original image signals, which have thus been transferred. Shimura teaches the image processing is performed on an apparatus including a CPU, floppy disk drive, CRT display and internal memory (Fig. 11; col. 14, lines 28-37), which clearly describe a conventional computer. Shimura clearly teaches the signals are stored in the internal memory (col. 18, line 60 – col. 19, line 9). Transferring data between the internal memory and the CPU for processing is inherent to the functionality of a conventional computer, thus transferring the corrected image signals from the internal memory to a transfer destination (CPU) for energy subtraction processing is inherent to the system and method taught by Shimura.

Regarding claim 4, Shimura discloses the image position correcting processing is performed on only the high energy image signal (col. 15, lines 1-14, The reference in essence allows either one to be corrected with respect to the other signal, thus meeting the limitation.).

Regarding claim 5, Shimura discloses a radiation image signal processing apparatus (Fig. 11) wherein:

i) image position correcting processing is performed for correcting a low energy image signal and/or a high energy image signal such that a position of an image, which is

represented by the low energy image signal, and a position of an image, which is represented by a the high energy image signal, coincide with each other, a pair of corrected original image signals being thereby obtained (col. 14, lines 52-65; col. 15, lines 1-14, Shimura teaches position adjustment processing is carried out on the image signals SO1 (low energy image) and SO2 (high energy image) such that the positions of the images coincide with each other.),

ii) first energy subtraction processing is performed on the pair of the corrected original image signals (col. 15, lines 15-40; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing energy subtraction to produce the bone image signal S1.), and

iii) second energy subtraction processing is performed with respect to the low energy image signal and the high energy image signal (col. 15, lines 41-54; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing energy subtraction to produce the soft tissue image signal S2.),

the second energy subtraction processing being performed by the utilization of the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing (col. 15, lines 1-54; Fig. 6, col. 19, lines 3-9; Fig. 9, col. 23, lines 17-39, Shimura teaches performing position adjustment processing and then performing the first and second energy subtraction processing. It is clear the first and second energy subtraction processing are performed using the same pair of position adjusted image signals.).

Regarding claim 6, Shimura further discloses the apparatus comprises:

a) common energy subtraction processing means for performing the first energy subtraction processing and the second energy subtraction processing (Fig. 11, col. 14, line 17-

col. 15, line 50, Shimura discloses an image processing and display apparatus (computer) for performing first and second energy subtraction processing.),

b) storage means for storing the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing (col. 14, lines 17-37, col. 18, line 60 – col. 19, line 9, Shimura teaches the apparatus contains internal memory.),

c) instruction means for outputting an instruction for performing the second energy subtraction processing (Although not explicitly reciting an instruction means, the processing and display apparatus taught by Shimura is clearly a conventional computer (Fig. 11; col. 14, lines 17-37). Instructions such as software programs are inherent to the functionality of conventional computers and thus an instruction means for performing the energy subtraction processing is inherent to the apparatus taught by Shimura.), and

d) control means for controlling the common energy subtraction processing means in accordance with the instruction, which has been outputted from the instruction means, such that the common energy subtraction processing means performs the second energy subtraction processing by the utilization of the pair of the corrected original image signals, which have been stored in the storage means (col. 14, lines 17-37, Shimura teaches the image processing and display apparatus includes a CPU.).

Regarding claim 7, Shimura further discloses the apparatus comprises:

a) first energy subtraction processing means for performing the first energy subtraction processing (Fig. 11, col. 14, lines 17- col. 15, line 35), Shimura discloses an image

processing and display apparatus (computer) for performing the first energy subtraction processing.),

b) second energy subtraction processing means for performing the second energy subtraction processing (Fig. 11, col. 14, lines 17- col. 15, line 50, Shimura teaches an image processing and display apparatus for performing the second energy subtraction processing. Current claim language does not exclude the first and second energy subtraction processing means from being the same.),

c) storage means for storing the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing (col. 14, lines 17-37, col. 18, line 60 – col. 19, line 9, Shimura teaches the image processing and display apparatus contains internal memory.),

d) instruction means for outputting an instruction for performing the second energy subtraction processing (Although not explicitly reciting an instruction means, the processing and display apparatus taught by Shimura is clearly a conventional computer (Fig. 11; col. 14, lines 17-37). Instructions such as software programs are inherent to the functionality of conventional computers and thus an instruction means for performing the energy subtraction processing is inherent to the apparatus taught by Shimura.), and

e) control means for controlling the second energy subtraction processing means in accordance with the instruction, which has been outputted from the instruction means, such that the second energy subtraction processing means performs the second energy subtraction processing by the utilization of the pair of the corrected original image signals, which have been

stored in the storage means (col. 14, lines 17-37, Shimura teaches the image processing and display apparatus includes a CPU.).

Regarding claim 8, Shimura further discloses the apparatus comprises:

a) first energy subtraction processing means for performing the first energy subtraction processing (Fig. 11, col. 14, lines 17- col. 15, line 35), Shimura discloses an image processing and display apparatus (computer) for performing the first energy subtraction processing.),

b) second energy subtraction processing means for performing the second energy subtraction processing (Fig. 11, col. 14, lines 17- col. 15, line 50, Shimura teaches an image processing and display apparatus for performing the second energy subtraction processing. Current claim language does not exclude the first and second energy subtraction processing means from being the same.),

c) instruction means for outputting an instruction for performing the second energy subtraction processing (Although not explicitly reciting an instruction means, the processing and display apparatus taught by Shimura is clearly a conventional computer (Fig. 11; col. 14, lines 17-37). Instructions such as software programs are inherent to the functionality of conventional computers and thus an instruction means for performing the energy subtraction processing is inherent to the apparatus taught by Shimura.), and

d) control means for transferring the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing, to the second energy subtraction processing means, and controlling the second energy subtraction processing

means in accordance with the instruction, which has been outputted from the instruction means, such that the second energy subtraction processing means performs the second energy subtraction processing by the utilization of the pair of the corrected original image signals, which have thus been transferred (col. 14, lines 17-37, Shimura teaches the image processing and display apparatus includes a CPU.). Shimura teaches the image processing is performed on an apparatus including a CPU, floppy disk drive, CRT display and internal memory (Fig. 11; col. 14, lines 28-37), which clearly describe a conventional computer. Shimura clearly teaches the signals are stored in the internal memory (col. 18, line 60 – col. 19, line 9). Transferring data between the internal memory and the CPU for processing is inherent to the functionality of a conventional computer, thus the control means for transferring the pair of the corrected original image signals from the internal memory to the processor for energy subtraction processing is inherent to the system taught by Shimura.

Regarding claim 9, Shimura further discloses the image position correcting processing is performed on only the high energy image signal (col. 15, lines 1-14, The reference in essence allows either one to be corrected with respect to the other signal, thus meeting the limitation.).

Regarding claim 10, Shimura further discloses the first energy subtraction processing is performed by a first energy subtraction processing means, and wherein the second energy subtraction processing is performed by a second energy subtraction processing means (col. 14, line 17 – col. 15, line 50, Claim language does not explicitly recite that the first and second energy subtraction processing means necessarily be different.).

Regarding claim 11, Shimura further discloses the image position correcting processing is performed by an image position correcting means which receives the low energy image signal and the high energy image signal from a buffer memory which temporarily stores the low energy image signal and the high energy image signal (col. 14, lines 17 – col. 15, line 14, Shimura teaches the first and second image signals are stored in the internal memory and then position adjustment processing is carried out.).

Regarding claim 12, Shimura further discloses the buffer memory receives the low energy image signal and the high energy image signal from a radiation image recording and readout apparatus (Fig. 11, col. 13, line 33 – col. 14, line 51, Shimura teaches the first and second X-ray images have been stored on stimulable phosphor sheets which are exposed to a laser beam and emit light. The emitted light is converted to electric signals that are sampled and amplified to form the first and second image signals.).

Regarding claim 13, Shimura further discloses an image position correcting means outputs the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing to a storage means (col. 15, lines 1-14; col. 18, line 60 – col. 19, line 9).

Shimura does not explicitly recite the pair of the corrected original image signals are transferred from the storage means to a common energy subtraction processing means when an instruction means outputs an instruction to a control means which controls the common energy

subtraction processing means such that the common energy subtraction processing means performs the second energy subtraction processing by the utilization of the pair of the corrected original image signals. However, Shimura teaches the image processing is performed on an apparatus including a CPU, floppy disk drive, CRT display and internal memory (Fig. 11; col. 14, lines 28-37), which clearly describe a conventional computer. Shimura clearly teaches the signals are stored in the internal memory (col. 18, line 60 – col. 19, line 9). Transferring data between the internal memory and the CPU for processing is inherent to the functionality of a conventional computer, thus transferring the pair of the corrected original image signals from the internal memory to the processor for energy subtraction processing is inherent to the system taught by Shimura. Also, instructions such as software programs are inherent to the functionality of conventional computers and thus an instruction means outputting instructions to a control means for performing the energy subtraction processing is inherent to the apparatus taught by Shimura.).

Regarding claim 14, Shimura further discloses the transfer destination is a common energy subtraction processing means, and

wherein the first energy subtraction processing and the second energy subtraction processing is performed by the common energy subtraction processing means (Fig. 11, col. 14, line 28 – col. 15, line 50, The same image processing and display apparatus performs both the first and second energy subtraction processing.).

Regarding claim 15, Shimura further discloses the image position correcting processing is performed by an image position correcting means which receives the low energy image signal and the high energy image signal from a buffer memory which temporarily stores the low energy image signal and the high energy image signal (col. 14, lines 17 – col. 15, line 14, Shimura teaches the first and second image signals are stored in the internal memory and then position adjustment processing is carried out.).

Regarding claim 16, Shimura further discloses the buffer memory receives the low energy image signal and the high energy image signal from a radiation image recording and read-out apparatus (Fig. 11, col. 13, line 33 – col. 14, line 51, Shimura teaches the first and second X-ray images have been stored on stimulable phosphor sheets which are exposed to a laser beam and emit light. The emitted light is converted to electric signals that are sampled and amplified to form the first and second image signals.).

Regarding claim 17, Shimura further discloses an image position correcting means output the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing to a storage means (col. 15, lines 1-14; col. 18, line 60 – col. 19, line 9), and

Shimura does not explicitly recite the pair of the corrected original image signals are transferred from the storage means to a common energy subtraction processing means when an instruction means outputs an instruction to a control means which controls the common energy subtraction processing means such that the common energy subtraction processing means

performs the second energy subtraction processing by the utilization of the pair of the corrected original image signals. However, Shimura teaches the image processing is performed on an apparatus including a CPU, floppy disk drive, CRT display and internal memory (Fig. 11; col. 14, lines 28-37), which clearly describe a conventional computer. Shimura clearly teaches the signals are stored in the internal memory (col. 18, line 60 – col. 19, line 9). Transferring data between the internal memory and the CPU for processing is inherent to the functionality of a conventional computer, thus transferring the pair of the corrected original image signals from the internal memory to the processor for energy subtraction processing is inherent to the system taught by Shimura. Also, instructions such as software programs are inherent to the functionality of conventional computers and thus an instruction means outputting instructions to a control means for performing the energy subtraction processing is inherent to the apparatus taught by Shimura.).

Regarding claim 18, Shimura further discloses an image position correcting means outputs the pair of the corrected original image signals, which have been stored in the storage means to the common energy subtraction processing means for performing the second energy subtraction processing (Fig. 11; col. 14, line 28 – col. 15, line 50; col. 18, line 60 – col. 19, line 9, Shimura teaches position adjustment of the image signals and the same image processing and display apparatus performs both the first and second energy subtraction processing using the image signals stored in the internal memory.).

Regarding claim 19, Shimura further discloses an image position correcting means outputs the pair of the corrected original image signals to the common energy subtraction processing means for performing the first energy subtraction processing (Fig. 11; col. 14, line 28 – col. 15, line 50, Shimura teaches position adjustment of the image signals and the same image processing and display apparatus performs both the first and second energy subtraction processing using the image signals.).

Regarding claim 20, wherein a buffer memory receives the low energy image signal and the high energy image signal from a radiation image recording and read-out apparatus (Fig. 11, col. 13, line 33 – col. 14, line 51, Shimura teaches the first and second X-ray images have been stored on stimulable phosphor sheets which are exposed to a laser beam and emit light. The emitted light is converted to electric signals that are sampled and amplified to form the first and second image signals.), and

wherein the buffer memory outputs the low energy image signal and the high energy image signal to an image position correcting means which performs the image position correcting processing (col. 14, line 66 – col. 15, line 14, Shimura teaches the image signals are read from the internal memory and position adjustment processing is carried out.).

Regarding claim 21, Shimura further discloses an image position correcting means outputs the pair of the corrected original image signals to a storage means, and to the first energy subtraction processing means generates an energy subtraction image signal by utilizing the pair of the corrected original image signals received from the image position correcting means (col.

15, lines 1-35; col. 18, line 60 – col. 19, line 9, Shimura discloses image position adjustment processing and performing energy subtraction using the first and second image signals stored in the internal memory.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura.

Regarding claim 22, Shimura does not disclose an image position correcting means outputs the pair of the corrected original image signals to a signal transfer cable, the signal transfer cable transfers the pair of the corrected original image signals to a filing device which stores the pair of the corrected original image signals. The Examiner takes Official Notice that signal transfer cables and filing devices (an example being a hard disk drive), are well known in the art of image processing utilizing computers such as the apparatus taught by Shimura. Signal transfer cables such as those connecting a hard disk drive to the other components of the computer are well known and would have been obvious to one of ordinary skill in the art in order to store the images on a hard disk drive providing safe and stable storage as well providing as a

large storage capacity which may be needed for large images of X-ray images such as those produced by the invention of Shimura.

Regarding claim 23, Shimura teaches the buffer memory outputs the pair of the corrected original image signals to the second energy subtraction processing means which generates an energy subtraction image signal by utilizing the pair of the corrected original image signals (col. 18, line 60 – col. 19, line 9).

Shimura does not disclose filing device output the pair of the corrected original image signals to a signal transfer cable which transfers the pair of the corrected original image signals to a buffer memory. The Examiner takes Official Notice that signal transfer cables and filing devices (an example being a hard disk drive), are well known in the art of image processing utilizing computers such as the apparatus taught by Shimura. Signal transfer cables such as those connecting a hard disk drive to the memory of a computer are well known and would have been obvious to one of ordinary skill in the art in as storage on the hard disk drive provides safe and stable storage as well providing as a large storage capacity thus reducing the amount of buffer memory required as it only needs to store images currently to be processed.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura in view of USPN 4,449,195 to Andrews et al. (Andrews).

Regarding claim 24, Shimura teaches the image processing and displaying apparatus is provided with a keyboard from which instructions are entered, but is silent with regard to the instruction means receives an instruction from the user regarding the second energy subtraction

processing prior to outputting the instruction for the second energy subtraction processing. Andrews teaches if a user desires to perform ad particular fluorographic procedure her or she is simply obliged to have the identification for the procedure fed by way of the CRT terminal keyboard the host CPU. The CPU then assembles the instructions for the procedure (col. 2, lines 43-61). Andrews further discloses the procedures that can be performed include obtaining high and low images (col. 3, lines 23-33) subtracting to obtain bone and soft tissue images (col. 5, lines 13-48). The user input is performed before the image processing begins and can therefore be considered as prior to the outputting of the instructions for the second energy subtraction processing. The teachings of Shimura and Andrews are combinable because they are both concerned with image processing of medical images including energy subtraction to obtain bone and soft tissue images. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus taught by Shimura to receive an instruction from a user regarding the second energy subtraction prior to outputting the instruction for the second energy subtraction processing at taught by Andrews in order to provide the user with control over the procedure to be performed by the system and control over the conditions and timing of the procedure.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shimura and USPN 4,792,900 to Sones et al. (Sones).

Regarding claim 25, Shimura is silent with regard to the first energy subtraction processing means and the second energy subtraction processing means being physically separated. However, Sones teaches a first material specific image filter and transform means to

obtain a soft tissue specific image and a second material specific image filter and transform means to obtain a bone selective image which are physically separated (Fig. 1; col. 6, line 25 – col. 7, line 6). The teachings of Shimura and Sones are combinable because they are both concerned with image processing or medical images, specifically, obtaining bone and soft tissue images. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the system taught by Shimura to implement the first and second energy subtraction processing means physically separated as taught by Sones in order have the filter functions uniquely adapted to selected material for the material specific image to be generated resulting in enhanced electronic images and reduced noise degradation (col. 4, lines 23-32; col. 7, lines 36-39).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shimura and Sones as applied to claim 25 above, and further in view of Andrews.

Regarding claim 26, arguments analogous to those presented above for claim 24 are applicable to claim 26.

Claim 27 rejected under 35 U.S.C. 102(b) as anticipated by Shimura or, in the alternative, under 35 U.S.C. 103(a) as obvious over the combination of Shimura and Sones.

Claim 27 recites, "the first energy subtraction processing provides an observation image, and wherein the second energy subtraction processing provides a second observation image." Provided the broadest reasonable interpretation of "an observation image," the image could be construed as an image representing (or consisting of) features of interest in the examination. In

this case, the soft tissue image (Fig. 9, "47") and the bone image (Fig. 9, "43") clearly identify bone features and soft tissue features. Claim language does not necessitate the observation image be a visibly displayed image.

If, on the other hand, an observation image in construed as a visible image displayed for observation by user, Shimura is silent with regard to displaying soft tissue image"47" and and bone image "43" (although Shimura's differentiation between and "image signal" and an "image" may indicate the contrary, see col. 14, lines 28-32). Shimura does teach displaying further processed bone and soft tissue images (col. 22, lines 21-26, 50-54). Sones teaches a display for displaying both the soft tissue image and the bone tissue image (Fig. 1; col. 7, lines 43-45). The teaching of Sones clearly identifies it is well known in the art to display both the bone and soft tissue images on a display for observation by user. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the first and second subtraction processing taught by Shimura to provide observation images (to visibly display the soft tissue and bone images for observation) as taught by Sones in order for the user to evaluate the image subtractions and processing results and to observe both the bone tissue and soft tissue simultaneously.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Mackowey whose telephone number is (571) 272-7425. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9/14/06

ANDREW W. JOHNS
PRIMARY EXAMINER